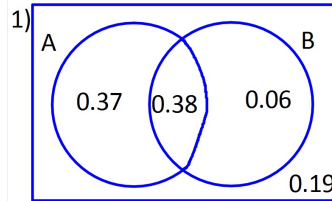


### Warm Up: #3 from notes yesterday

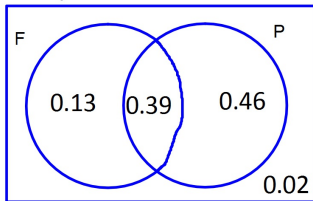
3. A particular football team is known to run 30% of its plays to the left and 70% to the right. A linebacker on an opposing team notes that the right guard shifts his stance most of the time (80%) when plays go to the right and that he uses a balanced stance the rest of the time. When plays go left, the guard takes a balanced stance 90% of the time and the shift stance the remaining 10%.

- Make a tree diagram
- What is the probability that the guard is balanced?
- What is the probability that a play will go to the left if the guard is balanced?



- $P(A \text{ or } B) = 0.81$
- $P(A^c \text{ and } B) = 0.06$
- $P(A \text{ or } B^c) = 0.94$
- $P(A \text{ and } B^c) = 0.37$

3) In a random sample of students it was found that 52% were female, 85% had a smart phone, and 39% were females with a smart phone.



- Not a female  $P(F^c) = 0.48$
- A female and doesn't own a smart phone  $P(F \cap P^c) = 0.13$
- Not a female and owns a smart phone  $P(F^c \cap P) = 0.46$
- Not a female or doesn't own a smart phone  $P(F^c \cup P^c) = 0.61$

4)

	Pierced Ears		
Sex	Yes	No	Total
Male	19	71	90
Female	84	4	88
Total	103	75	178

- What is the probability that a randomly selected student is male?  
 $P(M) = 90/178$
- What is the probability that a randomly selected student has pierced ears?  
 $P(Y) = 103/178$
- What is the probability that a randomly selected student is male and has pierced ears?  
 $P(M \cap Y) = 19/178$
- What is the probability that a randomly selected student has pierced ears given the student is male?  
 $P(Y|M) = 19/90$
- What is the probability that a randomly selected student is male given the student has pierced ears?  
 $P(M|Y) = 19/103$

	Pierced Ears		
Sex	Yes	No	Total
Male	19	71	90
Female	84	4	88
Total	103	75	178

- What is the probability that a female has pierced ears?  
 $P(Y|F) = 84/88$
- What is the probability that a student with pierced ears is female?  
 $P(F|Y) = 84/103$
- What is the probability that if a student doesn't have pierced ears that they are male?  
 $P(M|N) = 71/75$
- What is the probability that if a student doesn't have pierced ears that they are female?  
 $P(F|N) = 4/75$